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EXAMINER	
GODDARD, LAURA B	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,113	RIEGEL ET AL.	
	Examiner	Art Unit	
	Laura B. Goddard, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-53* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

It is noted that the claims of the instant application have been determined to include linking claims. **Claim 1 link(s) Groups I-VI**, as set forth below. The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim(s), claim 1. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/ are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 2 - 6, 14, 15, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates transcription induced by a nuclear receptor**, wherein the isoform contains a deletion comprising all or significant portions of **exon 3**, classified in class 530, subclass 350.

II. Claims 2 - 6, 14, 16, 17, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates transcription induced by a nuclear receptor**, wherein the isoform contains a deletion comprising a **binding domain**, classified in class 530, subclass 350.

III. Claims 2, 3, 7, 8, 14, 15, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates transcription by binding to**

and enhancing activity of a transcription factor, wherein the isoform contains a deletion comprising all or significant portions of **exon 3**, classified in class 530, subclass 350.

IV. Claims 2, 3, 7, 8, 14, 16, 17, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates transcription by binding to and enhancing activity of a transcription factor**, wherein the isoform contains a deletion comprising a **binding domain**, classified in class 530, subclass 350.

V. Claims 2, 3, 9, 10, 14, 15, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates signaling of a growth factor**, wherein the isoform contains a deletion comprising all or significant portions of **exon 3**, classified in class 530, subclass 350.

VI. Claims 2, 3, 9, 10, 14, 16, 17, drawn to an isolated protein isoform of an AIB1 transcriptional coactivator which **coactivates signaling of a growth factor**, wherein the isoform contains a deletion comprising a **binding domain**, classified in class 530, subclass 350.

VII. Claims 18-21, drawn to an isolated **nucleic sequence** that encodes a protein isoform of an AIB1 transcriptional coactivator, classified in class 536, subclass 23.1.

VIII. Claims 22, 23, 26, 27, 34, 35, drawn to a diagnostic **kit** for the detection of cancer comprising chemical substances that are **specifically reactive to a protein isoform** of an AIB1 transcriptional coactivator, an **antibody** that is specifically reactive to a protein isoform of an AIB1 transcriptional coactivator, and a **pharmaceutical composition** comprising an agent that specifically binds to a protein isoform of an AIB1 transcriptional coactivator, classified in class 530, subclass 387.1.

IX. Claims 24, 25, 28, drawn to a diagnostic **kit** for the detection of cancer comprising chemical substances that are **specifically reactive to a nucleic acid** that encodes a protein isoform of an AIB1 transcriptional coactivator and a **nucleic acid that hybridizes** to said nucleic acid, classified in class 536, subclass 23.1.

X. Claims 29, 30, drawn to a method for detection of cancer in a patient comprising contacting a biological sample from a patient with chemical substances that **specifically bind to a protein** isoform of an AIB1, classified in class 435, subclass 7.1.

XI. Claims 31, 32, 33, drawn to a method for **detection of cancer** in a patient comprising contacting a biological sample from a patient with chemical substances that **specifically bind to a nucleic acid** that encodes a protein isoform of an AIB1, classified in class 435, subclass 6.

XII. Claims 36-46, drawn to an **siRNA** that inhibits expression of a transcriptional coactivator protein and pharmaceutical composition comprising said siRNA, classified in class 536, subclass 24.5.

XIII. Claims 47-50, drawn to a method for **treating or preventing a tumor** comprising administering to a patient a pharmaceutical composition comprising an siRNA that inhibits expression of a transcriptional coactivator protein, classified in class 514, subclass 44.

XIV. Claims 51-53, drawn to a **transgenic animal** comprising a recombinant gene that encodes a protein isoform of an AIB1 transcriptional coactivator and method of creating the transgenic animal, classified in class 800, subclass 2, 18, 21.

The inventions are distinct, each from the other because of the following reasons:

The DNA of Group VII is related to the protein of Groups I-VI by virtue of the fact that the DNA codes for the protein. The DNA molecule has utility for the recombinant production of the protein in a host cell. Although the DNA and the protein are related, since the DNA encodes the specifically claimed protein, they are distinct inventions because the protein product can be made by other and materially distinct processes, such as purification from the natural source. Further, DNA can be used for processes other than the production of protein, such as nucleic acid hybridization assays.

Furthermore, searching the inventions of Groups VII and I-VI together would impose a serious search burden. In the instant case, the search of the polypeptides and polynucleotides are not coextensive. The inventions of Groups VII and I-VI have a separate status in the art as shown by their different classifications. In cases such as this one where descriptive sequence information is provided, the sequences are searched in appropriate database. There is search burden also in the non-patent literature. Prior to the concomitant isolation and expression of the sequences of interest there may be journal articles devoted solely to polypeptides which would not have described the polynucleotide. Similarly, there may have been "classical" genetics papers which had no knowledge of the polypeptide but spoke to the gene. Searching, therefore is not coextensive. This search requires an extensive analysis of the art retrieved in a sequence search and will require an in-depth analysis of technical literature. The scope of polynucleotides as claimed extend beyond the polynucleotide that encodes the claimed polypeptides as explained above: furthermore, a search of the nucleic acid molecules of Group VII would require an oligonucleotide search, which is

not likely to result in relevant art with respect to the polypeptide of Groups I-VI. As such, it would be burdensome to search the inventions of Groups VII and I-VI.

The polypeptide of Groups I-VI and the antibody of Group VIII are patentably distinct for the following reasons:

While the inventions of both Groups I-VI and Group VIII are polypeptides, in this instance the polypeptides of Groups I-VI represent various proposed cell cycling protein, whereas the polypeptide of Group VIII encompasses antibodies including IgG which comprises 2 heavy and 2 light chains containing constant and variable regions, and including framework regions which act as a scaffold for the 6 complementarily determining regions (CDR) that function to bind an epitope. Thus the polypeptides of Groups I-VI and the antibodies of Group VIII are structurally distinct molecules; any relationship between a polypeptide of Groups I-VI and an antibody of Group VIII is dependent upon the correlation between the scope of the polypeptides that the antibody binds and the scope of the antibodies that would be generated upon immunization with the polypeptide.

In this case, the polypeptides of Groups I-VI encompass large molecules which contain potentially hundreds of regions to which an antibody may bind, whereas the antibody of Group VIII is defined in terms of its binding specificity to a small structure within the sequences encompassed by Groups I-VI. Furthermore, searching the inventions of Groups I-VI and Group VIII would impose a serious search burden. The inventions have separate status in the art as shown by their different classifications. A

polypeptide and an antibody which binds to the polypeptide require different searches. An amino acid sequence search of the full-length protein is necessary for a determination of novelty and unobviousness of the protein. However, such a search is not required to identify the antibodies of Group VIII. Furthermore, antibodies which bind to an epitope of a polypeptide of Groups I-VI may be known even if a polypeptide of Groups I-VI is novel. In addition, the technical literature search for the polypeptides of Groups I-VI and the antibody of Group VIII are not coextensive, e.g., antibodies may be characterized in the technical literature prior to discovery of or sequence of their binding target.

The polynucleotide of Group VII and the antibody of Group VIII are patentably distinct for the following reasons:

The antibody of Group VIII includes, for example, IgG molecules which comprise 2 heavy and 2 light chains containing constant and variable regions, and including framework regions which act as a scaffold for the 6 complementarily determining regions (CDRs). Polypeptides, such as the antibody of Group VIII which are composed of amino acids, and polynucleotides, which are composed of nucleic acids, are structurally distinct molecules; any relationship between a polynucleotide and polypeptide is dependent upon the information provided by nucleic acid sequence open reading frame as it corresponds to the primary amino acid sequence of the encoded polypeptide. In the present claims, a polynucleotide of Group VII will not encode an antibody of Group VIII, and the antibody of Group VIII cannot be encoded by a polynucleotide of Group VII. Therefore, the antibody and polynucleotide are patentably

distinct. The antibody and polynucleotide inventions have a separate status in the art as shown by their different classifications. Furthermore, searching the inventions of Group VII and Group VIII would impose a serious search burden since a search of the polynucleotides of Group VII would not be used to determine the patentability of any antibody of Group VIII, and vice-versa.

The polynucleotide of Groups IX and XII do not encode the polypeptides of Groups I-VI and VIII. The polynucleotides of Groups IX and XII do not share the same sequence, structure, or function of the polynucleotide of Group VII.

The transgenic animal of Group XIV does not use the polypeptides of Groups I-VI and VIII, nor the polynucleotides of Groups VII and XII. The animal of Group XIV is related to the polynucleotide of Group IX by virtue of the fact that it comprises the polynucleotide. A search for an animal comprising said polynucleotide is not likely to result in relevant art with respect to the polynucleotide and vice versa. The inventions have separate status in the art as shown by their different classifications. Searching, therefore is not coextensive.

Inventions VIII and X are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the antibody of Group VIII could be used in affinity chromatography or to produce anti-idiotypic antibodies.

Inventions IX and XI are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the polynucleotide of Group IX could be used in affinity chromatography or to produce a protein.

Inventions XII and XIII are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the siRNA of Group XII could be used in affinity chromatography or hybridization assays.

The inventions of Groups X, XI and XIII are materially distinct methods which differ at least in objectives, method steps and reagents. For example, Groups X and XI are drawn to a method of detecting cancer from a patient *in vitro*, however each group utilizes different reagents and method steps to detect structurally and functionally different protein or polynucleotide molecules. Group XIII is drawn to the different objective of treating or preventing a tumor comprising administering an siRNA to a patient *in vivo*. Each of the groups employs chemically distinct reagents to accomplish different objectives that comprise different method steps. Searching all of the groups

with all of the different objectives, method steps, and reagents would invoke a high burden of search.

The products of Groups I-VII, IX, XII, and XIV are not used in the method of Group X. The products of Groups I-VIII, XII, and XIV are not used in the method of Group XI. The products of Groups I-IX, and XIV are not used in the method of Group XIII.

Because these inventions are distinct for the reasons given above and the search required for one Group is not required for any other Group, and because some Groups have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

SPECIES ELECTION

Species election for Groups I and II

A. This application contains claims directed to the following patentably distinct, structurally and functionally different **nuclear receptor** species of the claimed invention: **bile acid receptor, perxoidone proliferators receptor, retinoid receptor, steroid receptor, thyroid receptor, or vitamin D receptor** (claim 5).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic. **Claim 6 will be examined as drawn to the elected species.** See species election below.

Species election for Groups I-VI

B. This application contains claims directed to the following patentably distinct, functionally different **isoform expression** species of the claimed invention: **wherein the isoform of claim 1 is over expressed in a cancerous tissue** (claim 11), or **wherein the isoform of claim 1 is under expressed in a cancerous tissue** (claim 12).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic. **Claim 13 will be examined as drawn to the elected species.** See species election below.

Species election for Groups II, IV, and VI

C. This application contains claims directed to the following patentably distinct, structurally and functionally different **binding domain** species of the claimed invention: **bHLH, PAS A, PAS B, RID, CID, the exons of wild-type AIB1, a specified portion of a specific binding domain as listed,** or **a specified combination of binding domains listed** (claim 17).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Species election for Group XII

Applicant must elect a species from D and E below:

D. This application contains claims directed to the following patentably distinct, structurally and functionally different **coactivator protein** species of the claimed invention: **Src-1, Src-2, Src-3** (claim 37).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 36 is generic.

E. This application contains claims directed to the following patentably distinct, structurally and functionally different **binding domain** species of the claimed invention: **bHLH, PAS A, PAS B, RID, CID,** or **a specified combination of binding domains listed** (claim 41).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 36 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Note:

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained.

> Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**
>
> Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B. Goddard, Ph.D. whose telephone number is (571) 272-8788. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura B Goddard, Ph.D.
Examiner
Art Unit 1642

SUSAN UNGAR, PH.D
PRIMARY EXAMINER